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McDonnell Boehnen Hulbert & Berghoff			TORRES, JUAN A	
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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/964,911

**Applicant(s)**

ZERBE ET AL.

**Examiner**

Juan A. Torres

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Docket number MBHB00-167-B on September 5, 2001. It is noted, however, that applicant has not filed a certified copy of the application as required by 35 U.S.C. 119(b).

### ***Drawings***

The drawings are objected to because

- a) The recitation "C3" in Figure 9 second line out of block 702 is improper; it is suggested to be changed to "C2" as described in page 22 line 4.
- b) The recitation "715" in Figure 9 upper block with dash lines is improper; it is suggested to be changed to "705" as described in page 22 line 4.
- c) The recitation "C1" in Figure 9 second line out of block 702 is improper; it is suggested to be changed to "P1" as described in page 24 line 10.
- d) The recitation "C2" in Figure 9 second line out of block 702 is improper; it is suggested to be changed to "P2" as described in page 24 line 11.
- e) The recitation "C3" in Figure 9 second line out of block 702 is improper; it is suggested to be changed to "P3" as described in page 24 line 11.
- f) The recitation "602" in Figure 13 is improper; it is suggested to be changed to "1002" as described in page 26 line 13 and also in line 16.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Figures 2, 3, 4, and 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the

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description: block 1110 in page 15. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: recitation "1100" in page 28 line 22. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

The disclosure is objected to because of the following informalities:

- a) In Page 2 line 10 the recitation "PCT Application No. XXXX/XXXXX" is improper.
- b) In Page 22 line 5 the recitation "705" is improper; it is suggested to be changed to "711".
- c) In Page 22 line 5 the recitation "705" is improper; it is suggested to be changed to "711".
- d) In Page 23 line 16 the recitation " $V_{OUT}(N)$ " is improper; it is suggested to be changed to " $V'(N)$ " as show in figure 10.
- e) In Page 29 line 23 the recitation "1114" is improper; it is suggested to be changed to "1116".

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 6, 10, 13, 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pace (US 5585749) and further in view of Koazechi (US 5568045).

As claim 1 Pace discloses a reference voltage generator for a driver (column 2 lines 58-59). Pace doesn't disclose at least one reference voltage; at least one current

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control signal; and at least one active device coupled to a selected reference voltage level of the at least one reference voltage and the at least one current control signal, the at least one active device shifting the at least one reference voltage based on the at least one current control signal. Koazechi (abstract and claim 1) discloses at least one reference voltage (column 3 lines 15-19); at least one current control signal (column 3 lines 34-42); and at least one active device coupled to a selected reference voltage level of the at least one reference voltage and the at least one current control signal, the at least one active device shifting the at least one reference voltage based on the at least one current control signal (column 3 lines 21-26). Pace and Koazechi are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to substitute the reference voltage generator disclosed by Pace with the reference voltage generator disclosed by Koazechi. The suggestion/motivation for doing so would have been to generate a reference voltage stabled against the variation of a power supply voltage due to a noise component (Koazachi column 2 lines 38-42). Therefore, it would have been obvious to combine Pace and Koazechi to obtain the invention as specified in claim 1.

As claim 4 Pace and Koazechi disclose claim 1. Pace also discloses reference voltage is generated on at least one reference voltage driver (column 2 lines 58-59). Pace and Koazechi are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to substitute the reference voltage generator disclosed by Pace

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with the reference voltage generator disclosed by Koazechi. The suggestion/motivation for doing so would have been to generate a reference voltage stabled against the variation of a power supply voltage due to a noise component (Koazachi column 2 lines 38-42). Therefore, it would have been obvious to combine Pace and Koazechi to obtain the invention as specified in claim 4.

As claim 6 Pace and Koazechi disclose claim 1. Koazechi also discloses that the voltage is a highest voltage reference associated with the at least one voltage reference (column 3 lines 15-19). Pace and Koazechi are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to substitute the reference voltage generator disclosed by Pace with the reference voltage generator disclosed by Koazechi. The suggestion/motivation for doing so would have been to generate a reference voltage stabled against the variation of a power supply voltage due to a noise component (Koazachi column 2 lines 38-42). Therefore, it would have been obvious to combine Pace and Koazechi to obtain the invention as specified in claim 6.

As claim 10 Pace and Koazechi disclose claim 1. Koazechi also discloses a current source shifting the at least one reference voltage based on the at least one current control signal (figure 4 column 3 lines 34-42). Pace and Koazechi are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to substitute the reference voltage generator disclosed by Pace with the reference voltage generator disclosed by Koazechi. The suggestion/motivation for doing so would have been to



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generate a reference voltage stabled against the variation of a power supply voltage due to a noise component (Koazachi column 2 lines 38-42). Therefore, it would have been obvious to combine Pace and Koazechi to obtain the invention as specified in claim 10.

As claim 13 Pace and Koazechi disclose claim 1. Koazechi also discloses a current control signal is based on a voltage shift of a highest level associated with the driver (figure 4 column 3 lines 53-57). Pace and Koazechi are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to substitute the reference voltage generator disclosed by Pace with the reference voltage generator disclosed by Koazechi. The suggestion/motivation for doing so would have been to generate a reference voltage stabled against the variation of a power supply voltage due to a noise component (Koazachi column 2 lines 38-42). Therefore, it would have been obvious to combine Pace and Koazechi to obtain the invention as specified in claim 13.

As claim 14 Pace and Koazechi disclose claim 1. Pace also discloses a current mode driver (column 3 lines 65-67). Pace and Koazechi are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to substitute the reference voltage generator disclosed by Pace with the reference voltage generator disclosed by Koazechi. The suggestion/motivation for doing so would have been to generate a reference voltage stabled against the variation of a power supply voltage due to a noise

component (Koazachi column 2 lines 38-42). Therefore, it would have been obvious to combine Pace and Koazechi to obtain the invention as specified in claim 14.

As claim 17 Pace discloses a method for a reference voltage generator driver (column 2 lines 58-59). Pace doesn't disclose providing at least one reference voltage level; providing at least one current control signal, the current control signal based on a logic-state level shift associated with the driver; and adjusting the at least one reference voltage level based on the at least one current control signal. Koazechi (abstract and claim 1) discloses a method for providing at least one reference voltage level (column 3 lines 15-19); providing at least one current control signal, the current control signal based on a logic-state level shift associated with the driver (column 3 lines 34-42); and adjusting the at least one reference voltage level based on the at least one current control signal (column 3 lines 21-26). Pace and Koazechi are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to substitute the reference voltage generator disclosed by Pace with the reference voltage generator disclosed by Koazechi. The suggestion/motivation for doing so would have been to generate a reference voltage stabled against the variation of a power supply voltage due to a noise component (Koazachi column 2 lines 38-42). Therefore, it would have been obvious to combine Pace and Koazechi to obtain the invention as specified in claim 17.

Claims 2, 7 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pace (US 5585749) and Koazechi (US 5568045) as applied to claim 1 above, and further in view of Frazier (US 3723982).

As per claim 2 Pace and Koazechi disclose claim 1. Pace and Koazechi don't disclose that the reference voltage comprises three reference voltage levels. Frazier discloses a reference voltage that comprises three reference voltage levels (column 9 lines 1-5). Pace, Koazechi and Frazier are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the substitute the reference voltage generator disclosed by Pace and Koazechi with the three reference voltage levels disclosed by Frazier. The suggestion/motivation for doing so would have been to convert analog information into digital information (Frazier abstract). Therefore, it would have been obvious to combine Pace, Koazechi and Frazier to obtain the invention as specified in claim 2.

As per claim 7 Pace and Koazechi disclose claim 1. Pace and Koazechi don't disclose that the current control signal comprises an equalization current control signal. Frazier discloses a reference voltage that comprises a equalization current control signal (figure 7 block 94 column 6 lines 24-27). Pace, Koazechi and Frazier are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Pace and Koazechi with the equalization current control disclosed by Frazier. The suggestion/motivation for doing so would have been to compensate spectral distortion of the system (Frazier column 6 lines 26-27). Therefore, it would have been obvious to combine Pace, Koazechi and Frazier to obtain the invention as specified in claim 7.

As per claim 19 Pace and Koazechi disclose claim 17. Pace and Koazechi don't disclose that the level shift associated with the driver is based on an equalization signal applied to the driver. Frazier discloses a level shift associated with the driver is based on an equalization signal applied to the driver (figure 7 block 94 column 6 lines 24-27). Pace, Koazechi and Frazier are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Pace and Koazechi with the equalization current control disclosed by Frazier. The suggestion/motivation for doing so would have been to compensate spectral distortion of the system (Frazier column 6 lines 26-27). Therefore, it would have been obvious to combine Pace, Koazechi and Frazier to obtain the invention as specified in claim 19.

Claims 3,15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pace (US 5585749) and Koazechi (US 5568045) as applied to claim 1 above, and further in view of Alelyunas (US 6560293). Pace and Koazechi disclose claim 1. Pace and Koazechi don't disclose that the reference voltage comprises more than three reference voltage levels. Alelyunas discloses a reference voltage comprises more than three reference voltage levels (figure 8A-E column 8 lines 21-34). Pace, Koazechi and Alelyunas are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to substitute the reference voltage generator disclosed by Pace and Koazechi with the reference voltage levels disclosed by Alelyunas. The suggestion/motivation for doing so would have been to transmitting envelope modulated data signals on a Radio

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Frequency (Alelyunas abstract). Therefore, it would have been obvious to combine Pace, Koazechi and Alelyunas to obtain the invention as specified in claims 3, 15 and 16.

Claims 5, 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pace (US 5585749) and Koazechi (US 5568045) as applied to claim 1 above, and further in view of Spencer (US 4398287).

As per claim 5 Pace and Koazechi disclose claim 1. Pace and Koazechi don't disclose that the reference voltage is generated on a voltage divider. Spencer discloses a reference voltage is generated on a voltage divider (figure 2 column 6 lines 4-19). Pace, Koazechi and Spencer are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Pace and Koazechi the voltage divider disclosed by Spencer. The suggestion/motivation for doing so would have been to establish a symmetrical data eye (Spencer column 6 line 16). Therefore, it would have been obvious to combine Pace, Koazechi and Spencer to obtain the invention as specified in claim 5.

As per claim 12 Pace and Koazechi disclose claim 1. Pace and Koazechi don't disclose that the reference voltage is generated on a resistive voltage divider coupled to a reference voltage; and the active device is coupled to a highest reference voltage generated on the voltage divider, the active device shifting the at least one reference voltage based on the at least one current control signal and resistor values associated with the resistive voltage divider. Spencer discloses that the reference voltage is

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generated on a resistive voltage divider coupled to a reference voltage (figure 2 column 6 lines 4-19); and the active device is coupled to a highest reference voltage generated on the voltage divider, the active device shifting the at least one reference voltage based on the at least one current control signal and resistor values associated with the resistive voltage divider (figure 2 column 6 lines 14-50). Pace, Koazechi and Spencer are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Pace and Koazechi the voltage divider disclosed by Spencer. The suggestion/motivation for doing so would have been to establish a symmetrical data eye (Spencer column 6 line 16). Therefore, it would have been obvious to combine Pace, Koazechi and Spencer to obtain the invention as specified in claim 12.

As per claim 18 Pace and Koazechi disclose claim 17. Pace and Koazechi don't disclose that a reference voltage level generated on a resistive voltage divider. Spencer discloses a reference voltage level generated on a resistive voltage divider (figure 2 column 6 lines 4-19). Pace, Koazechi and Spencer are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Pace and Koazechi the voltage divider disclosed by Spencer. The suggestion/motivation for doing so would have been to establish a symmetrical data eye (Spencer column 6 line 16). Therefore, it would have been obvious to combine Pace, Koazechi and Spencer to obtain the invention as specified in claim 18.

Claims 8, 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pace (US 5585749) and Koazechi (US 5568045) as applied to claim 1 above, and further in view of Boughtwood (US 2732431).

As per claim 8 Pace and Koazechi disclose claim 1. Pace and Koazechi don't disclose a crosstalk current control signal. Boughtwood discloses a crosstalk current control signal (figure 2 column 3 lines 1-16). Pace, Koazechi and Boughtwood are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Pace and Koazechi the crosstalk current control signal disclosed by Boughtwood. The suggestion/motivation for doing so would have been to correct the leading and trailing distortion of the pulses (Boughtwood column 3 line 2-3). Therefore, it would have been obvious to combine Pace, Koazechi and Boughtwood to obtain the invention as specified in claim 8.

As per claim 11 Pace and Koazechi disclose claim 10. Pace and Koazechi don't disclose that the current source shifts the at least one reference voltage down. Boughtwood discloses that current source shifts the at least one reference voltage down (figure 2 column 3 lines 30-34). Pace, Koazechi and Boughtwood are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Pace and Koazechi the crosstalk current control signal disclosed by Boughtwood. The suggestion/motivation for doing so would have been to correct the leading and trailing distortion of the pulses (Boughtwood column 3 line 2-3).

Therefore, it would have been obvious to combine Pace, Koazechi and Boughtwood to obtain the invention as specified in claim 11.

As per claim 21 Pace and Koazechi disclose claim 17. Pace and Koazechi don't disclose the step of adjusting the reference voltage level comprises shifting down the reference voltage level based on the current control signal. Boughtwood discloses the step of adjusting the reference voltage level comprises shifting down the reference voltage level based on the current control signal (figure 2 column 3 lines 30-34). Pace, Koazechi and Boughtwood are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Pace and Koazechi the crosstalk current control signal disclosed by Boughtwood. The suggestion/motivation for doing so would have been to correct the leading and trailing distortion of the pulses (Boughtwood column 3 line 2-3). Therefore, it would have been obvious to combine Pace, Koazechi and Boughtwood to obtain the invention as specified in claim 21.

Claims 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pace (US 5585749), Koazechi (US 5568045) and Boughtwood (US 3381245) as applied to claim 8 above, and further in view of Frazier (US 3723982).

As per claim 9 Pace, Koazechi and Boughtwood disclose claim 8. Pace, Koazechi and Boughtwood don't disclose an equalization current control signal. Frazier discloses a reference voltage that comprises a equalization current control signal (figure 7 block 94 column 6 lines 24-27). Pace, Koazechi, Boughtwood and Frazier are



analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Pace, Koazechi and Boughtwood with the equalization current control disclosed by Frazier. The suggestion/motivation for doing so would have been to compensate spectral distortion of the system (Frazier column 6 lines 26-27). Therefore, it would have been obvious to combine Pace, Koazechi, Boughtwood and Frazier to obtain the invention as specified in claim 9.

As per claim 20 Pace, Koazechi and Frazier disclose claim 19. Pace, Koazechi and Frazier don't disclose level based on a crosstalk signal. Boughtwood discloses level shift based on a crosstalk signal (figure 2 column 3 lines 1-16). Pace, Koazechi, Frazier and Boughtwood are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Pace, Koazechi and Frazier the crosstalk current control signal disclosed by Boughtwood. The suggestion/motivation for doing so would have been to correct the leading and trailing distortion of the pulses (Boughtwood column 3 line 2-3). Therefore, it would have been obvious to combine Pace, Koazechi, Frazier and Boughtwood to obtain the invention as specified in claim 20.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pace (US 5585749) and Koazechi (US 5568045) as applied to claim 1 above, and further in view of Guanella (US 3381245). Pace and Koazechi disclose claim 1. Pace and Koazechi

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don't disclose a crosstalk current control signal. Guanella discloses a crosstalk current control signal (figure 2 column 3 lines 61-68 and column 10 lines 14-25). Pace, Koazechi and Guanella are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Pace and Koazechi the crosstalk current control signal disclosed by Guanella. The suggestion/motivation for doing so would have been to correct the leading and trailing distortion of the pulses (column 3 line 61-68). Therefore, it would have been obvious to combine Pace, Koazechi and Guanella to obtain the invention as specified in claim 8.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pace (US 5585749), Koazechi (US 5568045) and Guanella (US 3381245) as applied to claim 8 above, and further in view of Frazier (US 3723982). Pace, Koazechi and Guanella disclose claim 8. Pace, Koazechi and Guanella don't disclose an equalization current control signal. Frazier discloses a reference voltage that comprises a equalization current control signal (figure 7 block 94 column 6 lines 24-27). Pace, Koazechi, Guanella and Frazier are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Pace, Koazechi and Guanella with the equalization current control disclosed by Frazier. The suggestion/motivation for doing so would have been to compensate spectral distortion of the system (Frazier column 6 lines 26-27). Therefore, it would have been

obvious to combine Pace, Koazechi, Guanella and Frazier to obtain the invention as specified in claim 9.

Claims 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalb (US 6100713) and further in view of Koazechi (US 5568045).

As claim 22 Kalb discloses a memory bus system comprising: a bus including a plurality of signal lines with a reference voltage generator (abstract and column 3 lines 27-50). Kalb doesn't disclose a reference voltage; a plurality of drivers employing at least one control signal; and an active device associated with each of the plurality of drivers, the active device coupled to a highest reference voltage level of the at least one reference voltage and the at least one control signal, the active device arranged to shift the at least one reference voltage based on the at least one control signal. Koazechi (abstract and claim 1) discloses a reference voltage (column 3 lines 15-19); a plurality of drivers employing at least one control signal (column 3 lines 34-42); and an active device associated with each of the plurality of drivers, the active device coupled to a highest reference voltage level of the at least one reference voltage and the at least one control signal, the active device arranged to shift the at least one reference voltage based on the at least one control signal (column 3 lines 21-26). Kalb and Koazechi are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to substitute the reference voltage generator disclosed by Kalb with the reference voltage generator disclosed by Koazechi. The suggestion/motivation for doing so would have been to generate a reference voltage stabled against the variation of a power supply voltage

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due to a noise component (Koazachi column 2 lines 38-42). Therefore, it would have been obvious to combine Kalb and Koazechi to obtain the invention as specified in claim 22.

As claim 24 Kalb and Koazechi disclose claim 22. Koazechi also discloses a current source shifting the at least one reference voltage based on the at least one current control signal (figure 4 column 3 lines 34-42). Kalb and Koazechi are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to substitute the reference voltage generator disclosed by Kalb with the reference voltage generator disclosed by Koazechi. The suggestion/motivation for doing so would have been to generate a reference voltage stabled against the variation of a power supply voltage due to a noise component (Koazachi column 2 lines 38-42). Therefore, it would have been obvious to combine Kalb and Koazechi to obtain the invention as specified in claim 24.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalb (US 6100713) and Koazechi (US 5568045) as applied to claim 22 above, and further in view of Alelyunas (US 6560293). Kalb and Koazechi disclose claim 22. Kalb and Koazechi don't disclose that the reference voltage comprises more than three reference voltage levels. Alelyunas discloses a reference voltage comprises more than three reference voltage levels (figure 8A-E column 8 lines 21-34). Kalb, Koazechi and Alelyunas are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art

to substitute the reference voltage generator disclosed by Kalb and Koazechi with the reference voltage levels disclosed by Alelyunas. The suggestion/motivation for doing so would have been to transmitting envelope modulated data signals on a Radio Frequency (Alelyunas abstract). Therefore, it would have been obvious to combine Kalb, Koazechi and Alelyunas to obtain the invention as specified in claim 23.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalb (US 5585749) and Koazechi (US 5568045) as applied to claim 24 above, and further in view of Frazier (US 3723982). Kalb and Koazechi disclose claim 24. Kalb and Koazechi don't disclose that the current control signal comprises an equalization current control signal. Frazier discloses a reference voltage that comprises an equalization current control signal (figure 7 block 94 column 6 lines 24-27). Kalb, Koazechi and Frazier are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Kalb and Koazechi with the equalization current control disclosed by Frazier. The suggestion/motivation for doing so would have been to compensate spectral distortion of the system (Frazier column 6 lines 26-27). Therefore, it would have been obvious to combine Kalb, Koazechi and Frazier to obtain the invention as specified in claim 25.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalb (US 5585749) and Koazechi (US 5568045) as applied to claim 1 above, and further in view of Boughtwood (US 2732431). Kalb and Koazechi disclose claim 22. Kalb and Koazechi don't disclose a crosstalk current control signal. Boughtwood discloses a

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crosstalk current control signal (figure 2 column 3 lines 1-16). Kalb, Koazechi and Boughtwood are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the reference voltage generator disclosed by Kalb and Koazechi the crosstalk current control signal disclosed by Boughtwood. The suggestion/motivation for doing so would have been to correct the leading and trailing distortion of the pulses (Boughtwood column 3 line 2-3). Therefore, it would have been obvious to combine Kalb, Koazechi and Boughtwood to obtain the invention as specified in claim 26.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Juan Alberto Torres  
03-15-2005

  
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